Fleet Public Health

Navy Environmental Health Center

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NEPMU-6
Pearl Harbor, HI

Inside This Issue:

Emerging Super Bug Evades Disinfection

It was discovered in 1907, but it was not considered a human pathogen until 1976. Although it was responsible for several disease outbreaks in both Australia and England, it did not receive significant attention in the US until 1993. It was in that year that this important emerging pathogen caused over 400,000 illnesses and more than 100 deaths in Milwaukee Wisconsin. Do you know what it is?

I began collecting information on this critter after receiving a call from a medical officer aboard a ship on a WESTPAC. They were to receive potable water in a foreign port via water barges, but the source and quality of the water were unknown. The MO wanted to know what precautions to take to avert a waterborne disease outbreak. The *Navy Preventive Medicine Manual* (P-5010 ch.6) says "chlorinate incoming water to 2.0 ppm (mg/L) in the potable water tanks, for a least thirty minutes." However, will that kill the oocysts from this organism? No! In fact, 100 ppm for 30 minutes is ineffective against *Cryptosporidium*.

His call raised many questions. First what level of Chlorination would work? There must be some level. What is the risk to fleet? Do we see many cases, and if so, how do we respond? I sifted through all the literature I could find and came up empty. So, I sent an e-mail message to several col-

(Continued on page 8)

New OICs at Six and Two

Catching up with personnel changes this quarter brings into focus the fact that we have had two changes in leadership; Both NEPMU-6 and NEPMU-2 have new OICs.

We are fortunate to draw from a rich professional heritage in epidemiology and operational medicine, respectively. Following are the respective biographies of CAPT H. James Beecham III, the OIC at NEPMU-6 and CAPT Dwight C. Fulton, at NEPMU-2.

Raised in Atlanta, Georgia, Captain Beecham received his Bachelor's Degree in Biology from Asbury College, Wilmore, Kentucky in 1970, and graduated from the Medical College of Georgia in 1974. He completed a medicine internship at Baltimore City Hospitals and Johns Hopkins Hospital in 1975, and entered the US Public Health Service, Centers for Disease Control's Epidemic Intelligence Service in Atlanta, Georgia. While working with the Centers for Disease Control in 1976, Captain Beecham was involved in the investigation of the original Legionnaires' Disease epidemic. He was co-author of the first scientific paper that described this novel disease. Later he was one of the subjects of the book, *Anatomy of An Epidemic* by Gordon Thomas and Max Morgan-Witts, (Doubleday 1982), that told the story of the investigation of the Legionnaires' Disease epidemic.

(Continued on page 4)

...From the C.P.O. Community:

A few days ago, while channel surfing, I heard one of the most profound statements in my life. A minister was being interviewed concerning a community action program with which he was involved. I paused long enough to hear this minister make the statement "Change is a process, not an event". He further went on to explain that "if one is looking for an event to change one's situation, they would not succeed in making change." Most of us are capable of recognizing when something needs changing. The difficulty arises in executing change. However you arrive at the point of change, be assured that it did not occur without a series of processes. Advancement, transfer to a new duty station, separation from the service are all events which clearly mark a change in one's life. If examined closer, however, these changes were preceded by a series of processes that led to the event. Sometimes we took an active role in directing these processes to achieve the desired change, sometimes it seemed the processes took control of us and led to change. A new millenium is on the horizon, and most see this as a clear signal of change. However, even the millenium took 1000 years to prepare for the change…

More news that you can use:

Congratulations to those Corpsmen recently advanced or frocked to Chief Petty Officer, again a series of processes that led to a significant change.

Selective Reenlistment Bonuses (SRB) for PMT has changed. See NAVADMIN 148/98 for more information. This is the first time in my sixteen years as a PMT that I have seen Zone C 8432s eligible for SRB. This is a mixed blessing. Yes, some of you will get paid, but it also means we have a severe shortage of PMTs.

The sea/shore rotation for Preventive Medicine Technicians was changed from 48/36 to 36/36. See NAVADMIN 192/98 for details.

Finally… A significant change in the PMT community leadership will occur in October. HMCM(SW) Jackie D. Brown, 8432 Technical Leader and Command Master Chief of Navy Environmental Health Center, retires. Master Chief Brown has been our chief advocate and as a PMT, understood the "battles" that sometimes are waged to accomplish the job. He will be missed.

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Editor
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From the OIC:

Influenza immunization season will soon be upon us. Although influenza cases tend to cluster in the winter and spring season in the United States, in reality influenza occurs every month of the year. Just this August 1998, the Centers for Disease Control and Prevention (CDC) issued an influenza warning for travelers to Alaska and the Yukon Territory. Many cases of influenza had occurred among travelers to these areas between June and through August. At least 50 cases of flu-related pneumonia and two deaths have been associated with this summer outbreak that occurred among adult travelers. The cause: Influenza Type A/Sydney. A similar summer influenza outbreak began in Hawaii in 1997.

This past January 1998, NEPMU6 determined that a local outbreak of influenza that occurred among influenza-immunized, active duty personnel and family members at NAS Barbers Point, was due to a strain of influenza virus that was not covered by last year's flu vaccine (see our report in CDC's MMWR 20 March 1998). This flu strain, A/Sydney, is now included in the current 1998 Influenza Vaccine.

In a similar situation in San Diego in February 1996, a large outbreak of influenza among crewmembers of the USS Arkansas was evaluated by epidemiologists from NEPMU5, who likewise determined that the outbreak was caused by a non-vaccine strain, A/Wuhan.

Clinically, fever is the most important physical finding in influenza. The temperature usually rises to between 100-104 F, and typically lasts 3 days. The incubation period for flu is brief, only 1 to 2 days after exposure when the patient develops fever, chills, headaches, muscle aches, dry cough, sore throat and nasal discharge. Coughing becomes more prominent later in the course of the illness and may persist for some time after recovery. The severe myalgias typically may involve the long muscles of the back in adults, and in children pain may be so severe in the calf muscles that they may refuse to walk. More elderly patients may present simply with fever and confusion.

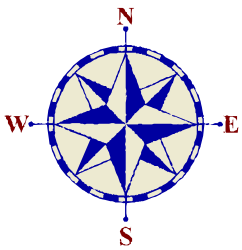
During the "Great Influenza Pandemic" of 1918, thousands of young American sailors and soldiers died of influenza. It is estimated that the attack rate of influenza among American Navy personnel during 1918 was close to 250 per 1000, or 1 in 4 American sailors. Likewise, indigenous populations were hit hard. In Western Samoa almost all of the 38,000 islanders were stricken with the flu, and 7500--almost 20 percent of the population--died. The hallmark of the 1918 Influenza pandemic was the virus' ability to kill healthy young adults. During this infamous epidemic there were a total of 675,000 American deaths and over 20 million influenza deaths worldwide.

Could it happen again? Possibly. Global pandemics of influenza hit the world about once in every human generation and have been recorded as far back as 876 AD. This potential threat is one reason why the Department of Defense, Global Emerging Infections System (DOD-GEIS) has targeted influenza surveillance as one of its top priorities. After setting up a respiratory viral disease surveillance program at several military installations in Hawaii last year, CDR Jeff Yund (NEPMU6) is currently setting up similar virus and influenza surveillance programs at other DOD sites throughout the Western Pacific.

In spite of the fact that the virus is constantly mutating and trying to stay one-step ahead of the vaccine manufacturers, Influenza Vaccine remains the best line of defense that we have to protect our forces from the potentially devastating effects of a full-blown influenza epidemic. Influenza vaccine is estimated to be 70-90% effective in preventing clinical flu symptoms in young adults who are infected with flu strains that are included in the vaccine formulation.

Each of us should maintain an acute awareness of the potential threat to readiness that influenza brings to the military. We should proactively support education; handwashing; disease reporting and surveillance; the Navy's Influenza Immunization Programs; and become educated about the specific indications for the proper use of antiviral drugs such as amantadine, in both the prevention of and treatment of influenza during epidemics.

H. James Beecham III, CAPT, MC, USN
Officer in Charge
NEPMU-6



Why is my Typhoid Vaccine *Still* on Backorder?

First, check the stock number. If the number is #6505-01-225-6301, the oceans will dry up before you ever receive this vaccine. This vaccine is no longer authorized for use. The Typhoid vaccine is manufactured by WYETH and consists of a 2-shot basic series with boosters every three years. **DO NOT USE** the TYPHOID MANUFACTURED BY WYETH!

Second, cancel your order if the stock number is NSN# 6505-01-225-6301.

Last, order the correct Typhoid Vaccine. You have two choices of authorized typhoid to order. The first choice is NSN# 6505-01-385-6328, TYPHOID VACCINE (ViCPS), MODIFIED, ACELLULAR, 10ML, 20 DOSE VIALS manufactured by Connaught. The basic series consists of one dose, 0.5cc, given IM with a booster dose every TWO years. Cost for one 20-dose vial is $162.75 OR $8.14 per person. **NOTE:** This NSN is currently on backorder with estimated delivery to the supply depot of August 1998.

An alternate choice is NSN # 6505-01-324-6964, TYPHOID, LIVE CAPSULES, TYPHI TY21A, 4S. The cost is $3.57 for one box of four tablets (4 tablets = one dose). This NSN is AVAILABLE and currently on hand at the Supply Depot.

VACCINE ADMINISTRATION: Oral Ty21a consists of one capsule taken every other day for a total of four capsules. Refrigerate, DO NOT FREEZE, the vaccine and ensure all four capsules are taken to achieve maximum efficacy. Take each capsule with COOL liquid (< 98.6F) one hour before a meal. Booster dose is also the 4 capsule series every 5 years. Side effects of Ty21a are rare and may consist of abdominal discomfort, nausea, vomiting, rash or urticaria.

ViCPS is one dose for primary vaccination consisting of 0.5ml administered INTRAMUSCULARLY. Booster dose is o.5ml IM every 2 years. Side effects may consist of fever, headache and local reactions such as erythema or induration.

*Note that **BOOSTER DOSES ARE INTERCHANGEABLE***. For example, if a crewmember received the 4-dose oral typhoid, they may receive the booster dose of 4 capsules OR a booster dose of ViCPS 0.5ml SQ. The same for a crewmember who received a primary vaccination of ViCPS. They can receive a booster dose of 0.5ml IM, OR complete the 4 capsule oral series for a booster dose. Keep in mind that if you interchange booster doses, your reimmunization schedule will also adjust – 2yrs for ViCPS and 5 yrs for oral Ty21.

CONTRAINDICATIONS: Do not administer oral Ty21a to members concurrently receiving antibiotics, the antimalarial mefloquine, or to persons with acute febrile illness. Delay vaccination with Ty21a for at least 24 hours AFTER the administration of any of these agents. Also individuals with immunosuppressed systems such

(Continued on page 10)

New OICs at Six & Two

(Continued from page 1)

He completed his internal medicine residency at the M. S. Hershey Medical Center of Pennsylvania State University and entered the Navy's Flight Surgeon program in 1982. In 1983, he reported to Patrol Squadron 4, NAS Barbers Point, Hawaii. Follow-on tours included Anti-Submarine Warfare Wing Pacific Flight Surgeon , San Diego, California; the Naval Hospital San Diego as a staff internist; senior medical officer, Naval Support Facility Diego Garcia 1987-88; Infectious Disease Fellowship at the Naval Hospital San Diego 1989-91; Director and Officer in Charge, Navy Tropical Medicine Course, Puerto Rico 1991-94; and Head, Tropical Medicine, NEPMU6, Pearl Harbor, HI 1994-98.

In 1989, he initiated the Navy's collaboration with the late Dr. Jonas Salk, and was the Principal Investigator of the Navy's first FDA-approved HIV vaccine trial at Naval Hospital San Diego, which successfully demonstrated the Salk HIV vaccine to be safe. This study was a prelude to the nationwide Salk HIV vaccine trial currently underway.

His projects at NEPMU6 include conducting enteric disease and vaccine epidemiology among US Troops deployed to Southeast Asia; determining the optimal booster intervals for Japanese encephalitis vaccine among Marines; and identifying infectious disease threats among US military personnel searching for remains of American servicemen Missing In Action in Laos, Vietnam, and Cambodia.

Captain Beecham is board-certified in both Internal Medicine and Infectious Diseases, and is a Fellow of the Infectious Disease Society of America. He is a member of the American College of Physians, the American Soci-

Detracting from...or Contributing to..the Internet?

A webmaster's perspective

Those of us who write in hypertext (the language of the internet), and are charged with web design, should ponder this fundamental question: Are we contributing to the wealth of services and information that abound on the web or are we simply detracting from it by taxing an already burdened global network?

Specifically, we must be mindful of five publishing tenets that will help us offer meaningful services as well as stimulate return-traffic to our website:

1 **Design your page or site with a purpose.** Identify who your customers are, conduct a needs survey concerning available and future services.

2 **Keep content fresh, accurate.** Visitors won't return if your information is outdated. Ensure hyperlinks to other sites are routinely monitored for "dead links".

3 **Design for ease in navigation.** Avoid burying a page underneath many links. Ideally, offer the service or information within a single mouse-click.

4 **Browser-neutral pages.** This tenet is a goal many web publishers aspire to achieve. Factors such as Java, JavaScript, and HTML extensions will cause your pages to be viewed differently in different browsers. Weigh the advantages and disadvantages in using these before applying them to your site, possibly risking a decrease in customer visits.

5 Have fun!

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NEPMU-5 webmaster

Navy Disease Reporting System Usage *Takes Off*

First, the good news. Most (75%) of the Medical Event Reports (aka Disease Alert Reports) submitted to the NEPMU-6 Epidemiology Department are in NDRS format. Both ashore and afloat commands use NDRS as their method of medical event reporting. Most of the commands send the reports using the email option that allows a user to create a "Zip" file attachment for electronic transmission. Others, that do not have readily accessible email capability, are entering data into NDRS, printing a hard copy, and submitting the report via fax or regular mail. Though the preferred method is email, the main objective of medical event reporting using NDRS is being accomplished.

Next, the OK news. The rest of the commands submitting medical event reports still use the old DAR format. Though reporting is obviously desirable, these commands may not be aware of BUMED WASHINGTON DC 061600Z OCT 97, which mandates use of NDRS for medical event reporting. If this is the case, then they also may not know that additional diseases and conditions have been added to the list of reportable diseases contained in BUMEDINST 6220.12 (Disease Alert Reports). The NEPMU-6 Epi Dept sends a receipt response letter to commands from which we receive reports. In this letter we refer to the message concerning NDRS use, and provide information on how to get NDRS software via the Internet, or by contacting us in order to send the software to that com-

(Continued on page 7)

New OICs at Six and Two

(Continued from page 4)

ety of Tropical Medicine and Hygiene, and the Armed Forces Infectious Disease Society. He has published over 20 papers in scientific journals. He is married to Norma Beecham of Waimea, Kauai. They have two adult daughters and three teenage sons.

Captain Dwight C. Fulton received his commission in the United States Navy in 1975. As a participant in the Naval Health Professionals Scholarship Program, he attended Temple University School of Medicine, graduating in 1980. In 1981, Captain Fulton completed a surgical internship at Naval Medical Center, Portsmouth, VA, and Flight Surgery Training at the Naval

(Continued on page 6)

Microbiology Beats the Thai Heat

Performing sensitive microbiology work under field conditions is always a challenge. This year in Thailand was no different. LT Marshall Monteville, NEPMU-6 Microbiologist and HM1 Jose Mendiola, NEPMU-5 Advanced Laboratory Technician were deployed in support of the Joint Task Force's Theater Medical Surveillance Team (TMST) during Cobra Gold 1998. The microbiology section arrived with the capability of doing bacteriology, parasitology, serology, virology and mycology. In addition, they provided molecular biology expertise performing multiplex polymerase chain reaction and DNA gel electrophoresis on suspected pathogens from raw stool. This support was not a part of their immediate mission, but it assisted Navy Medical Research Institute and Armed Forces Research Institute for Medical Sciences personnel in a collaborative field study.

However, the team's first order of business was to find a way to combat the heat and humidity. The heat was not only uncomfortable, but a potential show stopper. It also led to a very serious technical obstacle for microbiology work. The optimum incubation temperature for most microbes is between 37 and 42 degrees Celsius. When the daily outside temperature is routinely a hot and sunny 45 degrees Celsius, it is quite difficult to maintain bacteriological incubators within an optimum range inside a tent.

The team quickly set up two Forward Deployable Laboratory portable air conditioning units to combat the problem. This is when the next hurdle presented itself. The FSB was contacted two months prior to the deployment and had offered to supply "unlimited" 110/220V power to the TMST. However, while setting up the team's air conditioning units it was discovered that the majority of FSB equipment ran best between 110/208V single phase. Their 10K generators were configured to supply that precise range of power. TMST air conditioning units brought in from Hawaii ran best between 220-230V. It was decided not to alter the FSB generator power to accommodate our two air conditioning units, but to run them off portable generators brought in by both the team and 17th Combat Support Battalion. Once again the team had to adapt and overcome. LT Monteville, who by no means is an aspiring electrical engineer, quickly received a crash course from Sergeant David Lee and Specialist Jorge Rodriguez, 25 FSB Generator Technicians, in the finer points of "field alterations" for generators and plugs. LT Monteville and HM1 Mendiola, uniforms soaked with sweat, made the necessary "alterations" and soon had the air conditioners up and running. The temperature in the tent became bearable except for the hottest portions of each day. The team decided they could do better than bearable. Without hesitation, HMC Celso Yago, TMST LCPO, gathered the troops and erected camouflage netting. The direct sunlight was now off the tent and there was a dramatic drop in temperature. The microbiology group could now perform all of their advertised testing with brief interruptions for filling generator gas tanks, checking oil and dumping the condensation from the drain bucket. A few days passed and the 25th FSB requested to trade a large air conditioning unit for the TMST 5K generator. Apparently dental preferred running their autoclave off a smaller noisy generator. The team quickly formed a working group and thought about the ramifications of the trade for about 10 seconds and then

(Continued on page 7)

New OICs at Six and Two

(Continued from page 5)

Operational Medical Institute, Pensacola, FL. Since that time, additional accomplishments in medical training include the completion of medical residencies in both Family Practice (Naval Hospital, Jacksonville, FL, 1986-1989) and Aerospace Medicine (Naval Operational Medical Institute, 1994-1996) and the attainment of a master's degree in Public Health (Johns Hopkins University 1993-1994).

Prior operational and staff assignments include Flight Surgeon for CVW-1 aboard USS AMERICA (CV-66) (1982-1983); Flight Surgeon for the Naval Flight Demonstration Squadron, "Blue Angels" (1983-1986); Family Practice Staff Physician at Naval Hospital, Newport, RI (1989-1991); Senior Flight Surgeon for Naval Aviation Schools Command, Pensacola, FL (1991-1993); and most recently, Senior Medical Officer aboard USS DWIGHT D. EISENHOWER (CVN-69) (1996-1998).

Captain Fulton's awards include the Navy Commendation Medal (Third Award) and two Navy Meritorious Unit Citations. He is board certified by both the American Board of Preventive Medicine (Aerospace Medicine) and the American Board of Family Practice.

Captain Fulton and his wife, Faith W. Burrell, reside in Virginia Beach, VA.

1998-1999 Influenza Immunization Program: What you need to know

It's that time of the year when PMTs all over the world prepare for mass influenza immunizations. There are as many strategies for ensuring maximum participation as there Preventive Medicine Departments. So this article will only focus on the information you NEED before you start.

1) **By now, you should have ordered and received vaccine.** NAVMEDLOGCOM FT DETRICK MD 041413Z MAY 98 provides NSNs and other ordering information. It's important to realize that this message stipulates submitting vaccine orders to Defense Supply Center, Philadelphia, PA (S9M) by 31 July 1998. If you missed this deadline, call NAVMEDLOGCOM at DSN: 343-7118/3086.

2) **Read the BUMED message**. BUMED 131501Z AUG 98 provides all the details on how to properly administer the influenza vaccine. Among other things, it mandates influenza immunizations for all active duty Navy and Marine Corps personnel.

3) **Jet Injector gun apparatus use is prohibited**. As of December 1997, jet injector gun use was discontinued. For further details, review the message MMQC FT DETRICK MD 051704Z DEC 97.

As always, if you need guidance on the influenza immunization program, contact your local EPMU Epidemiology Department.

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Microbiology Beats the Thai Heat

(Continued from page 6)

agreed to it. The TMST tent immediately became the most popular tent on base to visit. The only problem after that was keeping the microbiology incubators warm enough.

Valuable lessons were learned by all. Working together with the Army to overcome a logistical obstacle was quite rewarding for both services. The only cost to the team was an occasional cold soda from the microbiology refrigerator properly labeled "Food Only" of course. Perhaps next time Navy Environmental Health Center will want to test the team's determination under blizzard conditions.

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Navy Disease Reporting System Usage Takes Off

(Continued from page 5)

mand.

Finally, the bad news. There appears to be considerable underreporting of those diseases and conditions which require reporting.

Medical Event Reporting is useful, and the information supplied is carefully reviewed. This information provides insight into disease trends, which leads to development and application of disease control recommendations for operational units.

All the information you possibly need about medical event reporting, NDRS, and other related topics is probably available at your nearest EPMU. NDRS software is available for download from the Navy Environmental Health Center homepage www-nehc.med.navy.mil, or from the NEPMU-6 homepage.

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Theater Medical Surveillance and Deployable Preventive Medicine Units: Cobra Gold 1998

In support of Cobra Gold 98, personnel from NEPMU-5 and NEPMU-6 were deployed to Thailand. The Theater Medical Surveillance Team's (TMST)primary mission was collecting disease and non-battle injury (DNBI) data for all US Forces in Thailand. DNBI surveillance supported DOD Directive 6490.2, which requires joint medical surveillance of all military personnel during military deployments. Team activities were sponsored by the CINCPAC surgeon, and served to represent the Navy Environmental Health Center (NEHC).

The TMST was located next to the Army's 25th Charlie Company Forward Support Battalion (FSB) in Kanchanaburi, a small town two hours west of Bangkok. The FSB had medical capabilities comparable to that of a surgical company. Being attached to a medical unit made TMST services and consultation readily available to those in need.

Working closely with Information Officers from Naval Medical Information Command (NMIC), CINCPAC, CINCPACFLT, and MARFORPAC, DNBI data was uploaded to a website on the Internet via NPRNET and/or CPRNET. The password-protected website was active for the duration of the exercise. Near real time data was available to for analysis to commands with access to the secure website.

The CG '98 DNBI data set will serve as a baseline for future exercises. It also served a tool to identify noteworthy disease trends and to help direct technical preventive medicine assistance. The TMST team conducted follow-up communications with reporting facilities when disease and injury rates appeared high. Other team activities included:

Entomology. The Entomology Section assessed disease vector abundance at selected operational sites. LT Brian Prendergast and HM2 Mike Broschart, PMT, NEPMU-6, performed vector surveillance operations. Extensive light trapping and indoor resting mosquito provided a reasonable assessment of disease transmission probability. In addition, collected specimens were shipped to the Armed Forces Research Institute of Medical Sciences (AFRIMS) located in Bangkok to determine if they were infected with malaria parasites and dengue fever virus. Approximately 3000 mosquitoes were trapped, most of these Culex spp. Only seven Anopheline, and no Aedes spp. were collected. The threat of malaria and dengue was assesed as low.

Repellent and bednet surveys were conducted on deployed personnel. Less than 50% of personnel surveyed used repellents. The bed net survey showed that while 80% used bed nets, less than 10% used them correctly. Despite the fact that disease threat was assessed as low, we never passed this information to troops or commanders, and did not expect poor compliance with personal protective measures.

(Continued on page 9)

Emerging Super Bug Evades Disinfection

(Continued from page 1)

leagues as well as the CDC Environmental Health Officer list server; it wasn't long before my mailbox was full. Here is what I learned:

First, a disinfectant's efficiency is often described by its Concentration time (Ct) factor. Multiply the concentration of the disinfectant (in mg/L) by the contact time (in minutes). Don't forget the temperature and pH of the water; they are also important factors to consider. The empirical free-chlorine Ct that will reduce *Cryptosporidium* cysts by 99% is 7200! This means that 240 ppm is required for a 30 minute contact time at 25 C in water and pH 7. Therefore, chlorine disinfection is neither practical nor desired.

The fact that many, if not all, of our ships rely on chlorination to treat suspect water supplies above routine levels forces the question; what is the risk to our population? Cryptosporidium is an emerging pathogen, and the true incidence is unknown.

Cryptosporidiosis is not reportable via Disease Alert Reports except as an outbreak, and I am not aware of any such reports in recent years. Perhaps that is because the symptoms are often subclinical/nonexistent in immunocompetent populations. People with healthy immune systems usually rid themselves of the parasite on their own and recover in fewer than 30 days. The risk to our military population is probably minimal. However, all recent, important waterborne outbreaks that occurred in the US happened in cities where water treatment met US EPA disinfection standards. Furthermore, the disease can be disastrous for immunocompromised person-

(Continued on page 13)

Health Hazards of Marine Sanitation Devices

Hepatitis A and E are serious illnesses that most people would not normally worry about getting while at work. NEPMU-5 recently received a phone call from the local shore intermediate maintenance activity (SIMA) requesting an inservice class on the health hazards of marine sanitation devices (MSD). The shop that requested the class receives many pumps, valves, and other MSD parts requiring repair and had a recent health scare. A repair person became ill with what was initially diagnosed as possibly hepatitis (type unknown), thought to have been acquired from MSD parts that weren't properly cleaned and disinfected prior to the parts leaving the ship.

Dirty contaminated hands which end up contacting food, drink, or tobacco products probably contribute to most illnesses traced back to MSDs; however, dirty hands are not the only means of contracting an illness related to MSDs. Sewage splashes to the eyes, mouth, and other mucus membranes or open cuts and sores may also be a means that pathogens enter the body. Hepatitis A and E are just two of the diseases that can be transmitted while working with MSD systems. Other diseases such as typhoid fever, tetanus, shigellosis, enterotoxic *E. coli*, cholera, oral polio, giardiasis, and amebic dysentery may also be transmitted from MSD systems.

The health hazards associated with MSDs are easy to prevent. Good leadership along with a little common sense and training is all that is needed. Most if not all illness that may be encountered while working with MSD systems and parts are transmitted via the fecal – oral route. So just break the fecal – oral route chain of infection and the risk of coming down with one of these diseases is unlikely. The best preventive measure is hand washing! Hand washing, with antibacterial liquid soap and warm water for at least 20 seconds, followed by drying by electric dryer or paper towels is the best prevention method. Other prevention strategies include education, personal protective equipment (rubber gloves, goggles, TYVEK suits or coveralls, and rubber boots) and up to date immunizations (typhoid fever, tetanus, oral polio, hepatitis A, hepatitis B) should be used in conjunction with hand washing.

As the situation at SIMA turned out, no one actually became ill with any of the above disease related to the MSD system or parts; however, the scare was real and SIMA recognized the need for additional training in this area. It is important to remember that MSDs can be occupational hazards waiting to happen and by no means are ship support activities exempt from these hazards. Always follow standard operating procedures to protect your own health and maintain a safe environment.

LTJG Jim Enriques. Jr., MSC, USNR, REHS
Environmental Health Department,
NEPMU-5

Theater Medical Surveillance & Deployable Preventive Medicine Unitss: CG 98

(Continued from page 8)

Industrial Hygiene. Industrial Hygiene sampling was conducted by LT Al Lumanog, NEPMU-5, and HMC(FMF) Celso Yago, NEPMU-6. Industrial Hygiene had two objectives: (1) identify and quantify chemical contaminants that may be present in the soil, water, and air that could adversely affect the health of deployed forces; (2) identify and quantify occupational health hazards presented by work operations performed by deployed forces.

In Thailand, as well as other developing countries, environmental hazards are far more abundant than in the United States. For example, the Medical Treatment Facility was located within 1000 yards of a huge open dump. Although levels of benzene from burning trash were never higher than personal exposure limits, slight changes in atmospheric conditions or increases in landfilling activity could present a hazard to troops. Asbestos, in roofing tiles, and lead & chromium, in paint, were quite common. In this environment, selection of berthing facilities should include a thorough inspection of the facility to identify possible health hazards, which consequently should lead to establishment of control measures and prevention of inadvertent personnel exposures.

Microbiology. (See article "Microbiology Beats the Thai Heat").

Valuable lessons were learned by all. Working together with the Army to overcome a logistical obstacles was quite rewarding for both services.

LT Brian F. Prendergast, MSC, USN
Entomologist

Health Services Collegiate Program

Hello Shipmates! If you are a hard-charger and have been looking for a way to obtain your bachelor's degree or master's degree and become a naval officer in the Medical Service Corps, I have good news for you. The Health Services Collegiate Program is available to all active duty personnel who have completed at least two years of college with a preferred GPA of at least 3.0,and can finish their degree within two full years.

Various fields are available that would be of interest to HM's and preventive medicine technicians such as, Industrial Hygiene, Environmental Health, Physician Assistant, and Health Care Administration, to name a few.

The program will pay you as an E-3 once you are accepted. Then if you make the Dean's list during your first two semesters, you will be advanced to E-4. Also, if you help to recruit another Officer Candidate you will be given another paygrade. You are still able to use your G.I. Bill and any school loans or grants for which you are eligible.

To get your package started, call HMC(FMF/AC) McKeown in Richmond, VA at 800-552-9947. He will mail you a package with more information. The staff at Naval Recruiting District are very knowledgeable about medical officer programs and will assist you in assembling your package. Good luck to you all!

Officer Candidate Charles Wilhite
Industrial Hygiene Department
NEPMU-2

Why is my Typhoid Vaccine *Still* on Backorder?

(Continued from page 4)

as HIV positive, chemotherapy, radiation treatment patients should not receive oral typhoid. Because Ty21a is a live-attenuated vaccine, it is inhibited by various antibacterial agents and by the antimalarial prophylactic agent mefloquine; However, Ty21a may be given the same time as Chloroquine and immune globulin. Because information is not available on the safety of typhoid during pregnancy, avoid administering any typhoid vaccine to pregnant women.

If you need further information or have any additional questions, our EPI phone number is (757) 44-7671 x 313, DSN 564-7671, and E-mail epiepmu2@aol.com.

HM1 JOHNSON
EPIDEMIOLOGY DEPT,
NEPMU-2

Baltic Challenge 98 Partnership for Peace
Klaipeda, Lithuania

When I was given my current assignment to the Navy Environmental and Preventive Medicine Unit Number 7 (NEPMU7) in Sicily, Italy, I was looking forward to a very rewarding challenge. To say I have not been disappointed is an understatement. Recently I was in Klaipeda, Lithuania, for the Baltic Challenge/MEDCEUR 98 exercise, where 5,000 troops from eleven countries worked, slept and ate together.

Baltic Challenge is a large, multi-national field exercise on and around the Baltic Sea. The training scenario centered around large-scale humanitarian aid after a major earthquake occurred two kilometers south of Klaipeda. Military and medical personnel from all over Europe responded. The USNS Comfort was deployed to treat injured evacuees and was the only major medical facility in the area.

As the senior Environmental Health Officer I supervised all environmental health and safety inspections for the exercise. I worked closely with my Local counterpart, a Lithuanian Army Epidemiologist, and her technician, including sharing environmental testing information that was new to them. It was quite an experience on personal, diplomatic and scientific levels.

Conducting food service inspections in another country with totally different customs can be very challenging. Diplomacy is the number one consideration. Fortunately the Lithuanians had just constructed a new chowhall using all new Swedish equipment. The old facility had numerous very serious environmental problems. The Lithuanians did all the cooking, cleaning and food service. The US Marines had two of their reserve mess personnel overseeing the Lithuanian's food service works. For the most part there were no problems with the food preparation, but some of their practices are quite different than ours. They have a food preparation rule that allows them to grind up meat, put it into patties and leave it out at room temperature for up to nine hours before cooking. The Lithuanian Food Service manager told me the nine-hour rule is appropriate at higher latitudes and they use special spices. The Lithuanians were initially very reluctant to alter any of their practices. However, through diplomacy and some scientific point-

(Continued on page 11)

Chemical or Biological Agent Attack: Are we Ready?

" Bong! Bong! Bong! Bong! The General Quarters alarm was sounded and everyone rushed to their assigned battle stations. Hatches were dogged and circle W was set throughout the ship. Up on the flight deck, a helo was launched to search and destroy two fleeing Iranian fast boats that were seen firing at the ship several miles on the starboard side. During the commotion, the ship went through a vapor cloud of unknown origin. Two hours later the helo radioed and informed the ship that the crew were all suffering from irritated skin and eyes, and burning pain all over their body. Meanwhile, the flight deck crew that launched the helo was also complaining of the same symptoms. The ship's Medical Officer did a quick mental calculation of the symptoms and immediately concluded that the cloud could have been a blister agent – a dreaded chemical warfare agent! The ship's Chem/Bio Bill was activated and Medical, Damage Control and Flight Deck personnel went to their preassigned stations. The helo landed on the Aft of the ship where the crew was immediately hustled to a Triage Station. Ambulatory casualties were directed to proceed to the FWD Decon Station for decontamination. One of the flight deck crew who apparently had severe exposure was immediately moved to the flight deck BDS (battle dressing station) for emergency decon and treatment. While this evolution was taking place on the flight deck, four Marines from a recon team who had returned to the ship from an amphibious operation five days ago presented themselves to sick bay with symptoms ranging from high temperature to headache and chest discomfort. All four reported having observed smoke clouds while conducting reconnaissance operation during the assault. Eventually, all casualties from the top side were evacuated to Main Medical where members of the Medical Department and the embarked Fleet Hospital Team rendered treatment."

That was the scenario played onboard the USS Peleliu (LHA-5) when the first shipboard exercise for a chemical/biological agent attack was held on a warm and sunny afternoon of 16 July 1998. The exercise was the final phase of a five-day Medical Management of Chemical, Biological, Radiological & Environmental Casualties Course sponsored by the Navy Environmental and Preventive Medicine Unit Five (NEPMU-5). This was only the second time this course was offered and the shipboard exercise was the first for the Navy. The shipboard exercise portion of the course would not have been possible without the enthusiastic support of the USS Peleliu. The Medical Department and Damage Control personnel were integral in assuring the logistics and manpower support requirement of the course were met.

THE THREAT. The threat of chemical/biological agent attack is now a popular topic. Recent events have

(Continued on page 12)

Baltic Challenge 98: Partnership for Peace
Kaipeda Lithuania

(Continued from page 10)

making, they finally agreed to refrigerate the prepared patties until it was time to cook them. The local servers, who normally serve some 200 personnel daily, did an excellent job serving more than 10 times that number. The food service personnel did an excellent job keeping the chowhall clean. Despite field conditions, the large number of people and countries involved and disparate attitudes toward public health, there were no food or waterborne outbreaks during the exercise.

For several days I had the opportunity to accompany the Lithuanian EPI Doctor and her technician in the field. Each time we road in the back of a World War II era jeep, a very unique, dusty and bumpy ride. In the field the Lithuanians do not chlorinate their water used for drinking or cooking or test any bacteriological samples. While in-country I supervised the teaching of these personnel in the use of household bleach to chlorinate their water buffaloes and how to check the chlorine level after chlorination. The Lithuanian's water buffaloes hold no more than 200 gallons. With the use of a portable incubator I taught them how to conduct bacteriological tests on water samples in the field. They were very impressed and requested procedures and information on how to obtain test equipment for their future use. This information was provided after my return to Sigonella via email.

The Lithuanians are a very pleasant people and it was a joy to work with them and learn about their country. I consider myself fortunate for having been involved in this exercise and being able to help a developing nation. This was a truly unique experience, which would not have been available to me if I was not been stationed at NEPMU7.

LCDR Deborah A. Cady, MSC, USN
Environmental Health Dept.
NEPMU-7

The Material Safety Data Sheet: A Good Training Tool

One of the most common discrepancies during shipboard industrial hygiene surveys is the lack of awareness training for chemical products used in individual work centers. "I" Division and safety standowns usually cover hazardous material (HAZMAT) in a generic sense. Attendees are told about the basics of HAZMAT such as what is considered HAZMAT, personal protection and proper disposal. But Sailors are not trained on the specific hazards associated with the chemical products they will actually be working with when they report to their assigned work centers. General awareness training does not also talk about the required personal protective equipment (PPE) specifically as it relates to the actual exposure in individual shops.

OPNAVINST 5100.19C requires Division Officers (DO) and Work Center Supervisors (WCS) ensure that prior to handling any HAZMAT, personnel are trained on the hazards associated with that material, and on the information on the associated Material Safety Data Sheet (MSDS). The availability and accessibility of MSDSs to personnel in their work center is an OSHA requirement and is echoed in ONAVINST 5100.19C. The intent of this regulation is to ensure that information about the material is available to the worker where he or she works and that they are trained on it. However, if the DO or WCS do not take the time to ensure their personnel read the MSDS for a particular product, then the regulatory intent fails.

RECOMMENDATIONS: When conducting walk-through inspections of the a work center, I always ask for the MSDS binder. Then I pull out about two or three MSDSs and start asking personnel what they know about these materials. This is where the survey turns into an impromptu training session. I tell the WCS of his/her responsibility to provide the training to the people under his supervision. A common response is the lack of time due to a busy operational schedule. One solution is to conduct the training during morning muster, when everyone is present and pretty much a captive audience. The DO or WCS can pull out an MSDS from the binder and start talking about the product. This training can be accomplished in five to ten minutes.

All the necessary information about the product that the worker need know is on the MSDS. There are three sections on the MSDS I recommend focusing on during the training session: Health Hazard, Personal Protective Equipment (PPE), Spill & Clean up Procedures.

The Health Hazard section provides information on toxicity and exposure hazards. The PPE section provides recommendations on what personal protective equipment to use to minimize or eliminate exposures. The Spill and Clean Up section provides procedural guidelines in case of a spill and materials used to clean up the spill.

Of course, the last step in any training session is the documentation. I usually recommend that the WCS develop a matrix where all the MSDSs are listed under one column and all the work center personnel listed under another column. In this format, personnel can just put their initials for the specific product discussed in the training.

MSDSs are not just documents that are placed in a binder and filed on the shelf to gather dust. With a little ingenuity and creativity, these documents can serve as a great training tool to help eliminate injuries and illnesses.

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Chemical or Biological Agent Attack: Are We Ready?

(Continued from page 11)

heightened our awareness and forced us to acknowledge the possibility that these weapons could be used on our deployed forces. The United States has identified those countries that possess the capability to manufacture and deliver chemical and biological warfare agents in times of war.

LESSONS LEARNED. During Desert Shield/ Desert Storm, many health care providers knew little about the effects of, and post exposure treatment for chemical and biological agents. The prevailing belief then was that defense against chemical or biological attack would be very difficult, and that casualty and fatality rates would be very high. Fortunately, a chem/bio attack did not occur during the conflict, but the question remains "what if?"

In the same conflict, retreating Iraqi soldiers set ablaze hundreds of Kuwaiti oilrigs. This act of environmental terrorism created thick clouds of black smoke, which quickly spread throughout the theatre of operation due to prevailing winds. The resulting environmental disaster not only hampered operations but also affected our ability to fight due to various health hazards, primarily respiratory, because of petroleum combustion. Our technological superiority served as blinders and we failed

(Continued on page 13)

Chemical or Biological Agent Attack: Are We Ready?

(Continued from page 12)

to foresee the other aspects of war that the enemy can exploit to inflict damage or slow the movement of troops and equipment.

In the advent of urban warfare, battles are being fought in cities where factories, industrial parks, and university laboratories could be found. During the Balkan war, our forces have to contend with environmental hazards like asbestos, chemical spills, and other particulate hazards presented by bombed out buildings. Our experience during Operation Cobra Gold 98 in Thailand indicated the level of consideration we place on personnel protection against environmental hazards when a medical forward support battalion was set up next to an open landfill. Again, our lack of training or perhaps our ignorance in recognizing environmental hazards and their effects on our personnel left us unprepared.

THE COURSE. The Medical Management of Chemical, Biological, Radiological & Environmental Casualties Course (MMCBRECC) is a pilot project of the Navy Environmental Health Center (NEHC). Instructors for this course, the so-called "CBRE Training Team", is comprised of multi-disciplinary professionals who have attended intensive training from the US Army Medical Research for Infectious Disease (USAMRID). The NEPMU-5 team is headed by CDR Nathan Lacy, (PhD, Analytical Chemistry). Other members of the team are LCDR Beadle (Epidemiologist), LCDR Del Vecchio (Environmental Health Officer), LT Lumanog (Industrial Hygiene Officer), and HM2 Oglesby and HM2 Weaverling (Preventive Medicine Technicians). Adjunct instructors from NEPMU-2 and NEHC, CAPT Thomas (MD), CAPT Betts (MD, PhD), CDR Culpepper (MD), and LCDR Harris (PhD) complement the team when necessary. Each of the instructors underwent a rigorous certification in specific subject areas ranging from Anthrax to riot control agents.

The MMCBRECC is a five-day course teaching recognition, decontamination, assessment and treatment of chemical and biological casualties. This course also teaches recognition of environmental health hazards and the precautionary measures that must be taken to prevent or eliminate personnel exposure. Priority is given to personnel protection over hazard mitigation. The main objective of the course is to prepare health care providers for when "the real thing happens." The target audience for the course includes physicians, nurses, and independent duty corpsmen (IDC). Topics covered include discussions on the history of various chemical and biological agents, methods of dispersion, symptoms of exposure, decontamination procedures, antidotes, and treatment. Students also learn to don military oriented protective posture garment (MOPP suit) to give them experience in treating casualties while wearing the MOPP suit.

Although this area of Navy medical training is in its infancy, there is already a growing request for more convening dates, especially overseas. In September, NEPMU-5 is exporting the course to Yokosuka, Japan to enable health care providers in the area to avail themselves of the training. Future convening dates are being determined and course announcements will be put out as soon as they are available.

Additional information about the course can be obtained through the NEPMU-5 Training Department at commercial (619) 556-7070 or DSN 526-7070. Interested personnel can also visit NEPMU-5 website at http://trout.nosc.mil/~nepmu5/.

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NEPMU-5

Emerging Super Bug Evades Disinfection

(Continued from page 8)

nel, so some risk does exist in the US and elsewhere.

Public health scientists, professionals, and regulators are now facing this dilemma in many parts of the country. The 1993 Milwaukee outbreak stimulated research, and forced the EPA to reconsider what the correct parameters for effective water treatment should be. You should know that current disinfection guidelines are based on chlorine levels that would eliminate pathogenic viruses and *Giardia* cysts not *Cryptosporidium*. In 1994, the EPA recommended parameters for effective water treatment that take *Cryptosporidium* into account when it proposed the Enhanced Water Treatment Rule (EWTR) in the Safe Drinking Water Act. The EWTR is scheduled to go into effect in 1999, and may become known as the "post *Cryptosporidium* rule." Additional studies are ongoing.

The final question is this: what can and should we do to protect Sailors and Marines from cryptosporidiosis? If your ship or unit is equipped with a Reverse Osmosis Water Purification Unit (ROWPU), you have little to fear.

(Continued on page 14)

Emerging Super Bug Evades Disinfection

(Continued from page 13)

These systems and all filters which capture particles smaller than one micron are effective. Distillation and boiling water for at least one minute works too, but you should take the following measures before you deploy:

- Gather information about water sources in the foreign ports you will be visiting well in advance.
- Find out if your water comes from a well (less risk) or a surface (higher risk) reservoir.
- Learn if the watershed is in a rural area. Humans, cattle and other domestic animals are the important reservoirs.
- Try to find out how the water is treated. For example, is the water filtered? And what type of system is used? This will help assess the risk, and we can use this information for future deployments.

Often, however, this information is not available. In that case, follow the Navy's Preventive Medicine Manual (P-5010 ch. 6) and chlorinate to 2.0 ppm in the tanks for 30 minutes. If the risk is higher and you start seeing illnesses that you can associate with the water, consider raising the residual to 5.0 ppm for 30 minutes. Although oocysts are very chlorine-resistant in disinfection studies, there is some evidence that chlorine disinfection has some benefit. Remember the ship's population is generally healthy and strong, and this may resolve the problem. Your only other option at this time is to boil all drinking water. It would be best if ships were able to distill questionable water from the pier. Better still would be to equip them all with ROWPUs.

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Environmental Health Dept
NEPMU-6

Customer Feedback:

NEPMUs' Supporting our Amphibious Forces

As a Medical Regulator and Fleet Medical Administrator aboard the USS GUAM (LPH-9) Amphibious Ready Group, I am tasked with a multitude of challenging responsibilities. It is comforting for a junior Medical Service Corps officer to know we can count on support from shore installations. NEPMU is no exception to this rule. Having made two Mediterranean deployments in the last two years, I have been fortunate to participate in five operations, several exercises, and a few liberty ports. Each geographical area and situation is unique and presents its own set of medical challenges to both Navy and Marine Corps medical assets on board. These are a few of my experiences with NEPMU-7 over the course of two years and two six-month deployments.

My first introduction to NEPMU was in the summer of 1996. The USS GUAM Amphibious Ready Group and the 22nd MEU(SOC) were tasked to perform a possible NEO in Monrovia, Liberia. We got the news while still in the Mediterranean Sea and Medical scrambled to make use of the time to prepare supply lists, medical evacuation plans, and requests for augmentation of medical personnel, before we reached the Gibraltar Straits and rounded the African continent.

As we assessed the medical problems endemic in West Africa, I made a call to EPMU-7 in Sigonella. Not only did we get the latest information on diseases in West Africa, we got clear guidance on when, how, and who was to get malaria prophylaxis. EPMU-7 also dispatched a Senior Chief Hospital Corpsman, Preventive Medicine Technician, who remained with us, and was invaluable, throughout our operations in West Africa. The Senior Chief assisted in distributing malaria prophylaxis and gave briefs on tropical diseases to our field and shipboard corpsman. He also was sent from the USS GUAM to Sierra Leone, where we had established a field medical unit to deal with logistics personnel supporting us on station in Liberia. Our medical unit also dealt with refugees fleeing the carnage in Liberia. We also sent malaria smears to EPMU-7 for analysis via the Naval Hospital in Rota, Spain. EPMU-7 came through for us during a difficult at-sea period for the USS GUAM and her Task Force.

(Continued on page 15)

Hail & Farewell

Welcome Aboard!

NEPMU-2

CAPT Dwight C. Fulton, USS D.D.EISENHOWER

LT Eduardo Gomez-Saladin, NAMRI 2, Jakarta

ENS Jacqueline Plotrowski, new accession

NEPMU-5

LCDR Sharon McDonald, MCAS, El Toro, CA

NEPMU-6

CAPT H James Beecham, III,

CDR Kenneth R. Ockermann, NAVHOSP, Rota

CDR David K. Taylor, CINCPACFLT, HI

LCDR Laurel A. May, NAVMEDCTR, San Diego, CA

HM1 Michael L. Purvis, NAVMEDCLINIC, Pt.Hueneme, CA

Mr. Bart Landis, Hickam AFB, HI

NEPMU-7

LCDR R. Hyer, Walter Reed Army Hosp.

Fair Winds and Following Seas!

NEPMU-2

CAPT Richard J. Thomas,

CDR Michael DeJaeger,

LT Clifford Schmidt,

HM1 Cynthia Collins, retired

HM2 James Ares,

HM2 Charles Wilhite,

NEPMU-5

LCDR Alfonso Vilamora, RSO San Diego, CA

Mr. Lloyd Parish, Sub Base, San Diego, CA

NEPMU-6

CAPT Ben Mitchell, HSO, Portsmouth, VA

HMC Ed Montero, Fleet Reserve

HM1 Louise Maranzana, Fleet Reserve

HM1 Ron Finnegan, TERA

NEPMU-7

HMCS Courtney Abrams, NEHC, Norfolk, VA

HM1 Barbara Cooper, NEHC, Norfolk, VA

EPMU's Supporting our Amphibious Forces

(Continued from page 14)

During my second deployment in 1997, the GUAM had acquired e-mail accounts and my communication with EPMU did not cease. Prior to pulling into Antalya, Turkey for liberty, we faced the issue of malaria in the region. My e-mail correspondence led to CDR Orndorf, MSC, USN and HMC Saint-Orange, USN. They quickly assessed the nature of our visit and the areas our personnel would travel to, and gave us clear-cut guidance on malaria treatment. We saved thousands of dollars by giving malaria prophylaxis to only those traveling on the MWR-sponsored countryside trip. Prior to leaving pierside, Norfolk, I paid a visit to EPMU-2, and encountered a highly supportive staff, consisting of a Hospitalman Chief and a Hospitalman 2nd Class. They did not overwhelm me with data, but gave me updated instructions, CD-ROMs and diskettes. My PMT aboard GUAM consumed the data provided; we used the information throughout my second deployment. Wherever the Navy may take me, I know I can count on the support and information provided by EPMU. It is their quality data that has allowed us, as an amphibious medical team, to make better decisions, whether on an exercise or an operation in a foreign land.

LT Youssef H. Aboot-Enein, MSC, USNR
Formerly: COMPHIBRON TWO Medical Regulator
MARG 96-1 and MARG 98-1
Currently: Plans, Operations and Medical Intelligence Officer
Naval Hospital, Great Lakes, IL

Special points of interest:

- *Could you use help finishing your bachelor's or master's degree?*
- *Are we ready for chemical or biological agent attack?*
- *Do you know all you should about the influenza threat and this year's immunization program?*
- *Are you waiting for typhoid vaccine?*

Fleet Public Health

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